THE STUDY OF CHINESE TRADE CERAMICS IN SUNGAI SADONG, SARAWAK

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UNIVERSITI SAINS MALAYSIA

2015

THE STUDY OF CHINESE TRADE CERAMICS IN SUNGAI SADONG, SARAWAK

by

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Thesis submitted in fulfilment of the requirements

for degree of

Master of Arts

January 2015

ACKNOWLEDGEMENTS

This study was made possible with the assistance and support of a number of people and organisations. First of all, I would like to thank my supervisor, Associate Professor Dr. Stephen Chia Ming Soon, the Deputy Director of the Centre for Global Archaeological Research (CGAR), Universiti Sains Malaysia (USM), Penang, for his tremendous support and excellent guidance during my research, and for providing me with a conductive environment for doing my research. I would also like to express my gratitude to the Director of CGAR, Professor Dato' Dr. Mokhtar Saidin for giving me the opportunity to undertake the graduate study program at CGAR. I am deeply indebted to his constant support and encouragement. I also wish to thank USM for providing the environment and the financial assistance for this research under the USM Research University Grant. My thanks also go to the Institute of Postgraduate Studies in USM for providing the USM Postgraduate Fellowship during the course of my study.

The analysis of Chinese trade ceramic in Sadong River, Sarawak was done over a period of more than one year at the Archaeology Section, Sarawak Museum Department with the assistance of a number of people. First of all, I would like to thank the Director of the Sarawak Museum Department, Mr. Ipoi Datan, for his kind assistance and for providing a good atmosphere for this research. I owe special thanks to the staff of the Sarawak Museum Department, namely Mr. Sherman Sauffi, Mr. Nicholas Daby, Mr. Bonnie Umpi, Mr. Francis Peter Sambong and Mr. Awang Abdullah Bin Awang Morshidi for all their help during this study. I am also thankful

to my informants during the field surveys. Their information has helped me in understanding the background of the archaeological sites in the Sadong River.

In addition, I would like to acknowledge the help given by the staff of CGAR, in particular Mr. Muhamad Ikhwan Harun and Mr. Abdul Mutalib Abdullah during the scientific analysis of the ceramic samples. I would also like to offer my sincere gratitude to Dr. Goh Hsiao Mei for sharing her knowledge and guidance during the writing of this thesis. I am thankful to Prof. Li Jian An, Director of the Institute of Archaeology, Fu Jian Provincial Museum as well as Mr. Li Bing Yan, Curator of the Chao Zhou Kiln Musuem, for their selfless support, encouragement and for sharing their knowledge of Chinese trade ceramics.

Last but not least, I would also like to thank my parents: Mr. Ko Chai Hee and Mdm. Ha Siow Ing for their constant support and encouragement.

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Ko, J. & Chia, S. (2014). Inscriptions on Chinese Ceramics from Benat Hilir, Samarahan, Sarawak. *Sarawak Museum Journal* LXXIII (n.s. 94).

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Ko, J. & Chia, S. (2014). Chinese Trade Ceramics from the Sadong River. Paper presented at 12th Borneo Research Council International Conference - Diversity & Dynamism in Borneo, 5th – 7th August 2014, Universiti Malaysia Sabah, Kota Kinabalu.

Ko, J. & Chia, S. (*in press*). *Kajian dan Klasifikasi Seramik dari Tapak Arkeologi Benat Hilir, Samarahan, Sarawak*. Paper presented at Seminar Arkeologi Kebangsaan Ke-2, 7th – 8th November 2013, Hotel Vistana, Penang.

Ipoi Datan, Ko, J. & Mohd Sherman Sauffi (*in press*). *Disebalik Efigi Buaya Tanah Long Semadoh: Episod Sejarah Ekspedisi Rajah Brooke*. Paper presented at Seminar Arkeologi Kebangsaan Ke-2, 7th – 8th November 2013, Hotel Vistana, Penang.

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KAJIAN SERAMIK PERDAGANGAN DARI CHINA DI SUNGAI SADONG, SARAWAK

ABSTRAK

Tesis ini membincang tentang hasil kajian seramik perdagangan dari China yang ditemui di Senangeh, Benat Hilir and Gedong di Sungai Sadong, Sarawak. Metodologi kajian yang diguna terdiri dari analisis secara morfologi dan saintifik serta kajian perbandingan untuk menjawab isu and persoalan tentang klasifikasi seramik (jenis dan warna glasiar), asal-usul dan pentarikhan seramik perdagangan China yang dijumpa di Sungai Sadong. Analisis morfologi yang dijalankan dalam kajian ini merangkumi klasifikasi berdasarkan warna glasiar, jenis, fungsi dan dekorasi seramik. Di samping itu, analisis saintifik dijalankan untuk mengkaji kandungan bahan-bahan kimia dalam sampel seramik yang dipilih untuk perbandingan dengan hasil klasifikasi berdasarkan ciri-ciri morfologi. Hasil daripada analisis secara morfologi dan saintifik turut dibandingkan dengan seramik rujukan dari tapak-tapak di China serta tapak dan kapal karam di Asia Tenggara. Tujuan perbandingan ini adalah untuk menentukan asal-usul dan pentarikhan seramik perdagangan yang dikaji dari Sungai Sadong, Sarawak. Sebanyak 6 jenis seramik dengan pelbagai warna glasiar, 15 jenis seramik dengan rekabentuk yang berlainan dan 3 kategori dekorasi utama dikenalpasti dalam kajian ini. Seramik dari kilang tanur Longquan di Provinsi Zhejiang dan Dehua di Provinsi Fujian, dua pusat pengeluaran seramik utama di selatan China telah dikenalpasti dalam kajian ini manakala produk seramik dari kilang tanur Jingdezhen di Provinsi Jiangxi dan kilang tanur Cizao di Provinsi Fujian pula berjaya dikenalpasti buat kali pertama. Hasil berkenaan telah menambah kepelbagaian jenis seramik dari China yang ditemui di

Sarawak dan menghubungkan seramik di Sarawak dengan jaringan perdagangan maritime di Asia Tenggara. Berdasarkan persamaan jenis seramik, kawasan Sungai Sadong dipercayai mempunyai hubungan yang rapat dengan tapak-tapak arkeologi di Kuala Sungai Sarawak, dan juga tapak-tapak arkeologi di Sungai Limau Manis, Brunei Darussalam. Tapak-tapak arkeologi di kawasan berkenaan dipercayai wujud pada masa yang lebih kurang sama, iaitu sekitar abad ke-10 hingga ke-14 tahun masihi.

THE STUDY OF CHINESE TRADE CERAMICS IN SUNGAI SADONG, SARAWAK

ABSTRACT

This thesis discusses the results of the study on the Chinese trade ceramics found in Senangeh, Benat Hilir and Gedong on the Sungai Sadong, Sarawak. The methodology used in this study included morphology analysis, scientific analysis and comparative studies, in order to answer questions concerning the classification (such as types and glaze colours), origins and date of production of the ceramics. Morphology analysis done in this study consists of classification of Chinese trade ceramics according to glaze colours, types, functions, and the decorations on the ceramics. Scientific analysis, on the other hand, was carried out to examine the chemical components of selected samples in order to compare the results of classification studies made based on morphology characteristics. The results of both morphology and scientific analyses were also compared with reference materials from other sites in China, as well as sites and shipwrecks in Southeast Asia, in order to trace the provenances and dating of the Chinese trade ceramics in this study. In total, six types of glazed ceramics, 15 types of utensils and 3 major categories of decorations had been identified in this study. Most of the ceramics found in this study are the products of Longquan kiln in Zhejiang Province and Dehua kiln in Fujian Province, China. In addition, ceramic products of Jingdezhen kiln in Jiangxi Province and Cizao kiln in Fujian Province as well as the products from other kiln sites situated in Fujian Province and Guangdong Province, have also been identified in this study. The results had increased the diversity of trade ceramics in Sarawak

and also connected this part of Sarawak to the ancient maritime trade networks. This study also indicated that the ceramics from the Sungai Sadong is closely related to those found in archaeological sites at the Sarawak River Delta and also sites at Sungai Limau Manis in Brunei Darussalam. Based on the similar types of Chinese trade ceramics found at these archaeological sites, it is believed that they are all dated the 10^{th} to 14^{th} centuries CE.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This chapter presents the issues and problems of Chinese trade ceramic research in Sarawak, objectives of present study, the research sites, scope of study and methodology used in this research. In addition, this chapter also attempts to introduce the general concept of Chinese ceramics and a general statement of Chinese trade ceramics found in Sarawak, Malaysia. Six types of Chinese ceramics are discussed in the following in order to standardise and understand the type of Chinese trade ceramics in this research.

1.1.1 Definitions of Chinese Ceramics

The word "ceramic" originated from the ancient Greek word "*keramikos*", which means clay (Liddell *et al.* 2007). It is used to refer anything made from clay (such as brick, pottery, tile, terracotta and others) and fired to become hard and durable. Ceramic vessel is an inorganic, non-metallic and solid product prepared by the action of heat and subsequent cooling. Oxford Concise Dictionary of Archaeology interprets that ceramic is "*The state that clay achieves when converted into pottery by firing to a temperature of not less than 500˚C. The term 'ceramics' is often used to refer to assemblages of pottery.*" (Darvill 2008). This revolutionary invention is the earliest human-create technique in transforming a substance to another through a chemical process. In fact, the early stage of ceramic industry is pottery making. Pottery, as described in the Oxford Concise Dictionary of Archaeology, is "*clay that*

has been fashioned into a desired shape and then dried to reduce its water content before being fired or baked to fix its form. At temperatures of about 400˚C water begins to be lost from the molecules forming the clay and at this point the clay cannot be returned to a plastic state through re-hydration. At around 1000˚C the clay molecules begin to fuse, and at higher temperatures still the minerals vitrify into a solid mass. Pottery is made in many different ways either by hand or using a potter's wheel. Because of the widespread availability of usable clay, pottery was independently invented in many parts of the world at different times." (Darvill 2008). Pottery is generally believed to have made its first appearance during the Neolithic Era when prehistoric people started to settle down at a place rather than the nomadic life. Owing to the far-reaching impact of pottery making, the technique was considered as one of the significant and revolutionary improvement of the Neolithic Era, equally same with the importance of the beginning of domestication of both animals and plants which began as early as 10,000 years ago (Chinese Ceramic Society 1982).

In the Chinese history of civilisation, ceramic industry shows a continuous development since the making of potteries from the early Neolithic era. The Chinese tradition recognizes two radical classes of ceramics based on the techniques used and the qualities of different products. They are low-fired ceramic – pottery (*Tao* 陶, approximately fired at a low temperature below 1100 ± 50˚C) and the high-fired ceramic - porcelain (*Ci* 瓷, approximately fired at a high temperature at 1200˚C and above) (Chinese Ceramic Society 1982, Darvill 2008). Distinctive characteristics between pottery and porcelain, first of all, quality of the clay; as the pottery is made up of potter's earth without any filtration, while the porcelain is made up of filtrated

Gao Ling clay. Secondly, porcelain must be decorated with glazes without exception; in contrast, the pottery is always without the cover of a glaze layer (only a few exceptions decorated with lead glazed). The content of iron oxide of both pottery and porcelain is divided by a standard of 3%, which mean the iron oxide inside a pottery is always more than 3% since the porcelain is below 3% (Wang 2011). Another commonly accepted principle is, pottery is the ceramic vessel with high water permeability, yet porcelain could hold the water element better. However, both of them are different but closely related.

Archaeological discoveries in mainland China indicated that the earliest evidence of the Chinese potteries is made within the early Neolithic period. The technique to make a pottery vessel is considered as one of the revolutionary improvements of early Neolithic Era to differentiate with unenlightened Palaeolithic Era (Chinese Ceramic Society 1982). Pottery is the general name of a group of various implements made up of potter's earth consisting of Iron oxide (Fe_20_3), Titanium oxide ($Ti0_2$), Calcium oxide (Ca0), Magnesium oxide (Mg0), Potassium oxide (K_20), Sodium oxide (Na_20), Manganese oxide (Mn0) and some other fluxing agents. It can be categorized according to material (such as clay pottery, clip sand pottery and others); colour (such as terracotta, painted pottery, black polished pottery, white pottery and grey pottery) and the theme of decoration (such as corded pattern, red slipped, geometric pattern, grid/basket pattern, stamped hard-pottery and others) (Wei 2008).

Pottery can be found in most of the archaeological sites around the world and it is no doubt that the ancient civilisations create their own potteries independently,

whereas porcelain is one of the greatest inventions of ancient China and spread to other regions around the world. The invention of making a porcelain vessel developed from the technique to make the white pottery using similar material (Kaolin or Gao Ling clay 高岭土), a result of the development of the pottery industry. A series of technique innovations such as maintaining high temperature in the kiln firing, filtrated materials which turned the product into a better quality, invention of glaze coating and improvement of techniques to make the white pottery brings to a better product, namely porcelain. Generally, a ceramic product with the chief material composed of Gao Ling clay matured in a kiln with the fire temperature at approximately 1200˚C (the temperature might be higher or sometimes a bit lower) and covered by the glaze on its surface, is a porcelain (Lu *et al.* 1983). Previous excavation and studies of the archaeological sites in China indicated that primitive form of the porcelain with a greenish glaze probably created in the early period of Shang Dynasty (approximately 16^{th} - 11^{th} Century BCE). However, the Eastern Han Dynasty (25 – 220 CE) is considered as the mature period in manufacturing the porcelain. Henceforth the production of ceramics, particularly the production of porcelain reaches a new stage.

Generally, classification of porcelain is always based on the period or date of production (such as Song Dynasty or Ming Dynasty), provenance or place of origin (such as the southern region of mainland China or Guangdong province), kilns (Yue kiln or Longquan kiln) and feature of the porcelain (such as glaze colours – celadon, white ware and others; types - plate, bowl and others). As mentioned earlier, Chinese porcelain can be further classified into various categories in accordance with different kinds of typology methods. Classification of the ceramic vessels is always

based on the glaze colours as it is the immediate way to differentiate one and others, the following terms are the common types of Chinese ceramics: tri-coloured glazed wares of the Tang Dynasty (唐三彩), celadon wares (青瓷), white wares (白瓷), black-glazed wares (黑釉瓷, or Temmoku 天目瓷), Qingbai wares (青白瓷), blue-and-white wares (青花瓷), yellowish-brown glazed wares (黄褐釉瓷) and other polychrome glazed wares. Generally, tri-coloured glazed wares always represent the artistic products of the Tang Dynasty; celadon wares represent the highest development of ceramic industry in Song and Yuan Dynasties; while blue-and-white porcelain indicates the golden period of manufacturing industry of Ming and Qing Dynasties. In fact, the typical categories mentioned above only represents the most significant achievement of the ceramic industry in the corresponding periods. It is not possible to discuss all types of Chinese ceramics in this study, therefore, several major categories of Chinese ceramics discovered in the research area had been stated and discussed.

1.1.2 GENERAL STATEMENT OF CERAMICS

1.1.2.1 Trade Ceramic

Trade ceramic is a kind of commodities produced to fulfil the demands of foreign markets, rise as one of the ceramic types during the Song Dynasty (Feng 1990). In short, it can be considered as a kind of ceramics purposely manufactured for maritime trade. Before the third stage of ceramics exportation, which is equally the same with the reign of Ming to Qing Dynasties, designs and the motifs decorated on trade ceramics have no difference with the products for the domestic market (such as celadon). By the Song to Yuan Dynasties, celadon is the main ceramic type for trade,

which also monopolized the domestic market. At the same time, white ware, Qingbai ware and black-glazed ware were not rare in the maritime trade. However, the type of ceramic in the maritime trade was eventually replaced by the blue-and-white porcelain during the middle period of the Ming Dynasty. Although trade ceramics of Chinese motif are similar to their counterparts manufactured for the domestic market, the time of production or place of origin of the products for trade might be different from those confined to domestic market. This is because the making of some ceramics with obsolete designs may have been continued for exportation purpose, after they had gone out of fashion for ages in mainland China.

Archaeological discoveries and historical records suggested that motifs from foreign countries were added to the decorations on trade ceramics during the middle period of the Ming Dynasty (Lin 2011, Gan 2008). During the reign of Emperor *Jia Jing* (嘉靖, 1522 – 1566 CE, the reign of *Ming Shi Zong* 明世宗朱厚熜, the 12th emperor of Ming Dynasty), ceramic products, particularly the blue-and-white porcelain, with typical designs or motifs from the foreign countries were purposely created to fulfil the needs of the foreign market. For instance, enamelled-wares decorated with European motifs such as armorial-porcelain for the European nobles, and blue-and-white porcelain decorated with Islamic motifs or Arabic inscriptions for the Middle East (Feng 1990). This kind of Chinese ceramics with foreign-motifs were not found before the middle period of Ming Dynasty, except for the large dishes first made in Zhejiang province and later at Jingdezhen kiln in Jiangxi province which is rarely seen in the Chinese tradition (Lin 2011). Chinese ceramics with foreign motif are commonly known as Chinese export porcelain, and it is considered as one of the ceramic types for trade under the category of trade ceramics.

However, Chinese ceramic with foreign designs are not included in this research as the ceramics discovered from the selected archaeological sites in the research area are confined to the products manufactured before Ming Dynasty.

1.1.2.2 Tri-coloured glazed wares (三彩瓷)

Ceramics of this type is best known as the typical Chinese art of the Tang Dynasty commonly unearthed from the tomb of people with high social status. The unique ceramic type is made up of filtrate white clay and decorated with glaze consisting of copper (Cu), iron (Fe), cobalt (Co), manganese (Mn) and other specific elements. The clay body is fired at a high temperature approximately 1100 ˚C before the glazing process. After that, lead (Pb) will be added into the glaze fluid as a combustion improver and fired at a lower temperature ranging from 800 to 900 ˚C. Different metal elements inside the glaze will turn into various types of colours (for example cupric oxide will turn into green, iron or ferric oxide will turn into yellowish or brown) during the firing process (Wei 2008). The colourful vessels were named "tri-coloured glazed ware" because yellow, white and green are the most common colours that appeared on the surface. However, there are actually more than three colours, but "tri-coloured glazed ware" had become the common name for this type of Tang's ceramic. This colourful ceramic product is considered as one of the significant trade items of the Tang Dynasty. Large quantities of tri-coloured glazed ware had been discovered in Japan, Egypt and elsewhere (Valenstein 1988). In fact, archaeological evidences show that the sites in the research area lacked artefacts dated to 6^{th} – 9^{th} century CE, except for the discovery of Chinese coins of the Tang Dynasty - "*Kai Yuan Tong Bao*" (开元通宝) in Gedong (Chin 1969).

1.1.2.3 Celadon (青瓷)

The word “celadon”, is a term originally given by the Western scholars to describe the green-glazed Longquan (龙泉窑) wares from southern China; however, it is now commonly used to name ceramics with green colour glaze. The formation of glaze colours usually depends on the content of iron oxide (more or less) and the completeness of reducing atmosphere in the kiln firing. The terms for both celadon and green-glazed ware in Mandarin is “青瓷”, which means porcelain coated with a glaze green in colour. Therefore, celadon class recognized in this study refers to all the ceramics covered by a glaze which is basically green in colour. Celadon ware had played a significant role in the development of the ceramic industry because advanced techniques used to make the celadon wares (such as the application of reducing atmosphere during the firing process) contributed to the inventions of other ceramic types. The earliest evidence of celadon ware probably emerged within the Shang to Zhou Dynasties based on archaeological discoveries in China (The Chinese Ceramic Society 1982, Wei 2008). However, it is considered as the “proto-type” or primitive form of celadon ware as the technique of glazing is immature compared to the ceramic products of the later periods. The making of celadon ware became well developed during the Eastern Han Dynasty as indicated by large quantities of celadon wares unearthed from tombs and sites dated to this span of time.

Henceforth celadon started to hold the majority status in the ceramic industry of ancient China until the Tang Dynasty, following the emergence and development of white ware that challenged the monopoly of the celadon ware. Because kiln sites that produced white ware are mostly located at the northern part of China, the production of ceramics was summarized as “south green and north white” period (南

青北白) during the Tang Dynasty. The output of celadon wares had dropped and the production centres confined to the southern part of China. In fact, the development of celadon ware in southern China became well developed during the Song Dynasty, which is the most prosperous period of the ceramic industry in ancient China, especially the achievement in making fine celadon wares for the royal court and the exportation of ceramic products to foreign markets. Ceramic kilns during this period were able to produce high quality celadon products, in particular the Yue kiln (越窑), Longquan kiln (龙泉窑), Guan kiln (官窑), Jun kiln (钧窑), Ru kiln (汝窑) and Yaozhou kiln (耀州窑) (Wei 2008, Li 2011). Amongst the kiln sites mentioned above, Longquan celadon is the most popular in the ceramic trade and is well known for its lustrous jade-like quality in the foreign markets.

The manufacture of trade ceramic had become a nationwide industry in this period and continued for several hundred years until the present day. Although the potters continued to produce celadon wares after the fall of the Song Dynasty, the qualities of celadon wares began a decline and were eventually replaced by blue-and-white porcelain which became popular during the middle period of the Yuan Dynasty. Celadon ware was finally replaced by the blue-and-white porcelain during the Ming and Qing Dynasties, but the making of celadon continued in a smaller scale until the present day. There are also some kilns which kept on imitating the Song's celadon wares to meet the needs of foreign markets. In some cases, the emperors of the Qing Dynasty prefer to imitate celadon vessels from the past including the Song's. Celadon ware is the most common ceramic type found in the research area, which refer to a group of ceramics with a variety of green colours ranging from pure

green to non-uniform green colours (mixed with greyish and yellowish at the same time).

1.1.2.4 White ware (白瓷)

White ware is a type of Chinese porcelain made up of white clay and coated with a transparent glaze. Based on the Chinese documents, white ware is often refer as "white-coloured" porcelain. In fact, the glaze covered on the wares is transparent and the white colour came from filtrated clay or the white slip which covered on the entire surface with a very low content of iron oxide (The Chinese Ceramic Society 1982). It appears similar to the celadon wares, the white ware family comprising a variety of white colours such as pure white, white-yellowish, white-greyish, milky white and ivory white. Therefore, it is sometimes difficult to distinguish a ceramic vessel as white ware or Qingbai ware without the assistance of scientific tests, particularly when the ceramics were made with low quality. The earliest evidence of white ware discovered in China was found during the Eastern Han Dynasty, which they were also considered the "proto-type" of the white ware. The production of well developed white ware occurred during the Southern and Northern Dynasties (魏晋南北朝) based on the evidences unearthed from a tomb dated to the Northern Qi Dynasty (北齐) (Wei 2008). However, the creation of good quality white ware happened at the Xing kiln (刑窑) during the Tang Dynasty, and it rapidly challenges the monopoly of the celadon ware in the ceramic industry. Other kiln sites that were able to produce the white wares are the Quyang (曲阳窑) and Gongxian kilns (巩县窑). This type of ceramic grew as one of the major products in the ceramic industry known as the so-called "south green and north white" period during the Tang Dynasty (Wei 2008). In this period, white wares are characterized as the ceramics of

the “northern type” because the production centres of white wares are mostly situated in the northern part of China.

Until the Song Dynasty, Ding kiln (定窑) rapidly developed as the production centre of the white wares following the tradition of Quyang kiln (曲阳窑), a kiln in the Tang Dynasty which is also famous for its white ware products (Wei 2008). However, the white wares manufactured at the Ding kiln were mostly produced for the domestic market rather than for maritime trade as the kilns are located in northern part of China. Thus, the products of Ding kiln are rare among the findings from archaeological sites out of China and from the shipwrecks, compared to the products of other kiln sites in southern China, although the white wares of Ding kiln were also involved in the ceramic trade. In fact, white wares exported to the foreign markets were mostly manufactured by the kilns in southern China such as Dehua kiln following the tradition of Ding kiln. Because of the poor materials used by the kiln sites in southern China, potters of the kiln sites in southern China commonly covered a white slip onto the exterior to improve the whiteness of their products. This weakness had later become one of the common features found on the white wares from southern China.

Dehua kiln (德化窑) in Fujian Province became the production centre of white wares after the fall of the Xing kiln and Ding kiln. Following the tradition of Ding kiln, the Dehua kiln also exported large quantities of the chalky white wares to the foreign markets since the Southern Song Dynasty. High quality white wares of the Dehua kiln are known as “*Blanc De Chine*” in the later periods, after the potters improved the quality of materials and glazes. Dehua kiln was greatly involved in the

ceramic trade due to its strategic location which lies close to the trading ports in Fujian Province. As a result, large quantities of ceramic wares from Dehua kiln had been discovered from sites around Southeast Asia and elsewhere. It is therefore not surprising that most of the white wares identified in this study are the products of Dehua kiln.

1.1.2.5 Qingbai ware (青白瓷)

Qingbai ware is also known as Yingqing (Ying Ch'ing) ware in some of the ceramic studies, which refer to a type of ceramic wares coated with a semi-transparent glaze in icy bluish-white (Wei 2008). These two terms are referred to as the same ceramic type that was used in different times. Qingbai is commonly seen on documents written during the Song to Yuan period, while Yingqing (means shadow green) which better describes shadow effects of the fine porcelain compared to the direct description of Qingbai term, were created during Qing Dynasty (Li 2011). "*Qing*" means green, while "*Bai*" means white in Mandarin; the Chinese potters name the ceramic wares with a colour in between green and white as "Qingbai" ware. Therefore, the porcelains covered by a glaze in neither green nor white, but somewhere in between, are considered as Qingbai ware.

The production of Qingbai ware started at the Jingdezhen kiln, where the ceramic type was created, during the early period of Northern Song Dynasty (Wei 2008, Li 2011). In addition to Jingdezhen kiln, Qingbai ware was produced at many other kilns in south China such as Baishe kiln (白舍窑) in Nanfeng District of Jiangxi Province, Dehua kiln (德化窑) in Fujian Province, as well as Chao'an kiln (潮安窑) in Guangdong Province and Fanchang kiln (繁昌窑) in Anhui Province (Wei 2008, Li

2011). In fact, not all the kiln sites in southern China were able to produce genuine type of Qingbai ware similar to the products of Jingdezhen kiln, except for the Baishe kiln in Jiangxi Province, Fanchang kiln in Anhui Province and some other kilns. Some of the imitations tend to be greyish compared to the genuine type of good quality Qingbai wares. Therefore, it is sometimes difficult to distinguish a ceramic product as Qingbai-greyish ware or white ware due to the limitation of visual inspection. Based on the archaeological evidences from China and the findings from the shipwrecks, Qingbai wares were exported in large quantities to the foreign markets during the Song and Yuan Dynasties (Li 2008). As the cases in this study, genuine type of good quality Qingbai wares were rarely seen, while a large number of the Qingbai wares found from the research area tend to be greyish in colour.

1.1.2.6 Black-glazed ware (黑釉瓷) or Temmoku (天目瓷)

"Temmoku" is a Japanese term which refers to ceramics covered by a kind of opaque glaze in black colour, in particular the tea bowl originated from the kiln sites in Fujian Province. It is first used to describe the black glazed tea bowls of Jian kiln (建窑) brought back to Japan by the monks who studied in the Buddhist temples at Mount Tianmu in Zhejiang Province, China. The term "Temmoku" is also extended to include ceramic products covered by opaque glaze in black colour; however, the use of "Temmoku" is not as wide as the term "celadon", which refers to all the ceramics which are basically green in colour. Therefore, ceramics coated with an opaque glaze in black colour are known as black-glazed ware in this research. Similar to other ceramic types mentioned above, this kind of ceramic wares are also fired at a high temperature (approximately 1200 ℃) in a kiln, and it has a very high

content of iron oxide (approximately 8 - 10 %) in the glaze fluid which turned the glaze into black or dark brown. The black colour of the glaze is more obvious and pure if the thickness of the glaze increases. Generally, materials of black colour glaze can be classified into lime glaze and alkaline-calcareous glaze. The black glazed wares produced during the Eastern Han Dynasty and Eastern Jin Dynasty are made using lime glaze, while black glazed wares of the Tang Dynasty and later periods are made using alkaline-calcareous glaze (Wei 2008).

Like the emergence of celadon wares, archaeological evidences discovered in China indicated that the production of black-glazed wares in substantial quantities started during late Eastern Han Dynasty, but the quality of black-glazed wares at that time was thought to be rough and coarse (The Chinese Ceramic Society 1982). Deqing kiln (德清窑) in Zhejiang Province is the kiln to succeed in manufacturing good quality black-glazed wares, during the Eastern Jin Dynasty (The Chinese Ceramic Society 1982:144). Black-glazed ceramics have become popular during the Tang Dynasty and it is considered as one of the common ceramic types beside celadon ware and white ware. In spite of this, the black-glazed ware is also considered as a secondary product to those kilns known for producing white wares; for example, black-glazed wares of Ding kiln are known as “Hei Ding” (means black-glazed ware of the Ding kiln).

Only in the Song Dynasty, developments of black-glazed wares reached its peak when high quality black-glazed wares with interesting decorations on the glaze layer such as “hare’s fur” (兔毫釉), “oil spot” (油滴斑), “hawksbill” (玳瑁斑) and “partridge-feather” (鹧鸪斑) effects were created. Black-glazed wares with “hare’s

fur" and "oil spot" effects are typical products of Jian kiln (建窑, also known as Jian'an 建安窑 or Jianyang kiln 建阳窑) in Fujian Province; while black-glazed wares with "hawksbill" effect are produced in Jizhou kiln (吉州窑) of Jiangxi Province (Li 2011). Black-glazed wares decorated with "partridge-feather" pattern can be found from the products of both kilns. However, not all the black-glazed wares produced for the ceramic trade were made in good quality, a large numbers of half-glazed ceramics in black colour had also been found from the kiln sites in Fujian Province, from the archaeological sites out of China and also from the findings of the shipwrecks in South China Sea (Chen *et al.* 1982, Xu *et al.* 1991, Karim 2004). In this study, only a few good quality black-glazed ceramics were determined, while the remaining ceramics found to be black-glazed are rough and coarse.

1.1.2.7 Blue-and-white porcelain (青花瓷)

The name of this type of ceramic was derived from the decorations in blue pigment painted on the white clay and covered by a transparent glaze layer. Blue-and-white porcelain is a type of ceramics made up of good quality Gao Lin clay and painted or stamped with under-glaze decoration using a pigment containing cobalt (oxide) blue. In ceramic study, it is known as a kind of "under-glaze" porcelain as the decorations are painted "under" the glaze coating. In the making of "under-glaze porcelain", the most common colours are black (iron), red (copper) and blue (cobalt). Because the colour originated from cobalt oxide that is sharper and stable among the colours from other materials, cobalt oxide is thus the most frequently used material as it is stable in the under-glaze decoration. Genuine type of blue-and-white porcelain consist of several common characteristics which included controlling the formula of blue pigment using cobalt, the mature of painting "under" the glaze, the mastered of

drawing skills on porcelain clay and the making of fine porcelain in pure white (Valenstein 1989).

Primitive form of blue-and-white porcelain occurred in the Tang Dynasty in accordance with the evidences discovered in Yangzhou (扬州), China and the finds of Belitung Shipwreck (Wei 2008, Gu 2009). Unlike other types of ceramic wares, the occurrence of blue-and-white porcelain in large scale is probably dated not earlier than the Southern Song Dynasty and the production of this ceramic type went into maturity at Jingdezhen kiln during the Yuan Dynasty (Feng 1994, Li 2011). Blue-and-white porcelain rapidly developed in the middle to late Yuan Dynasty, and caused to the fall of the celadon wares which monopolized the ceramic trade for several hundred years. According to the evidences discovered in Iran, Turkey, Philippines and elsewhere, blue-and-white porcelain was broadly involved in the ceramic trade since Yuan Dynasty (Feng 1994). In the early stage of production, blue-and-white porcelain manufactured by Jingdezhen kiln played a role as the trade item for exportation to meet the demands of foreign markets, rather than for the need of the domestic market (Li 2011). Gradually, it became the main commodities of maritime trade since the Ming Dynasty and continued until the present day.

The study of blue-and-white porcelain is quite different from other ceramic types usually classified and identified according to the production centres (such as Longquan celadon). The study of blue-and-white porcelain, especially those produced in the Ming and Qing Dynasties, is mostly classified according to the date of production or the reign of the emperor such as blue-and-white porcelain of the *Xuan De* period (宣德时期) or *Wan Li* period (万历时期). Direct involvements of Ming

Court in the ceramic industry give rise to the monopoly of blue-and-white porcelain among the products of "official kilns" (官窑) and most of the "folk kilns" (民窑). Therefore, classification according to the place of origin is not suitable for the production of ceramic wares since the Ming Dynasty. Nevertheless, blue-and-white porcelain is not included in this research as blue-and-white porcelains are not seen among the findings from the selected archaeological sites.

1.2 STATEMENT OF PROBLEMS

One of the most difficult problems on Chinese trade ceramic in Sarawak is the dating and tracing the origin (kiln sites or place of origin) of the Chinese trade ceramics. In particular, many of their provenances are unknown and are dependent on archaeological fieldworks in mainland China. Although sites with ceramics discoveries were reported and recorded, the sequence of Chinese trade ceramics in the research area still remains unknown. In Sarawak, previous studies of Chinese trade ceramics in Sungai Sadong are mostly based on excavations carried out from 1960s to 1980s. In fact, several archaeological sites associated with Chinese trade ceramics, discovered and excavated after 1980s, have yet to be studied. For instance, the archaeological site of Benat Hilir excavated in 2002 and the findings of Senangeh discovered in 1996. There is thus a gap in the study of Chinese trade ceramics, especially after many local museum researchers studying ceramics have retired. In addition, previous researches in Sarawak were mostly limited to morphological analysis and no scientific analyses were carried out on the Chinese trade ceramics discovered in Sarawak. Published articles regarding the archaeological sites in the

research area are mostly site reports of the findings and research papers on Chinese trade ceramics from Sarawak are rare.

1.2.1 Classification of the trade ceramics

In the ceramic study, classification study is one of the basic components after the identification of ceramics. Ceramics can be classified according to commonly accepted concepts based on type or morphology appearance. The classification study of Chinese trade ceramics in Sarawak was first initiated by Carla Zainie in association with Tom Harrisson, Barbara Harrisson, Eine Moore and others (Zainie & Harrisson 1967). At that time, archaeological data from China were limited; Zainie and Harrisson tentatively classified the Chinese trade ceramics according to glaze colours and material (texture). They tentatively established a classification system comprising ten major classes, including white ware (include Qingbai ware and "Marco Polo ware"), Yue type, celadon, Temmoku, green-glazed ware, T'zu Chou ware, coarse stoneware, Siamese ware, blue-and-white ware and polychromes (Zainie & Harrisson 1967, Chin 1977, 1988). This system was intelligible at that time, but it was not related to the classification in China and moreover, this system is not according to a single criterion. For instance, white wares were classified based on the glaze colour while the coarse stonewares were distinguished based on texture. This type of classification system is not firm and requires further extensive revision. For instance, Qingbai ware which previously included in the class of white wares, is often classified in a single category by most researchers today. Hence, it is necessary to reclassify Zainie and Harrisson's system by separating the Qingbai wares from the white wares.

Chin (1969), on the other hand, classified the Chinese trade ceramics excavated from the site in Gedong into six major classes, namely the white wares; celadon (including Yue type); brown-glazed wares; green-glazed wares; coarse stone-wares and earthen-wares, following the classification of Zainie and Harrisson. His study of the materials from Gedong is the only classification analysis available regarding the sites in the research area.

It is therefore necessary to review the previous classification of the Chinese trade ceramics from Gedong and even the classification of Chinese trade ceramics in Sarawak, and to include the materials from newly excavated sites in the classification study. This is because in the past decades, extensive excavations on the kiln sites have been conducted in mainland China, and issues and problems of certain classification study have been resolved. Apparently, a more effective and acceptable classification system is needed to reclassify the Chinese trade ceramics in Sarawak.

1.2.2 The origin of trade ceramics

The ceramic collection of the Sarawak Museum Department has trade ceramics from ancient China, Japan, Sawankhalok or Siam (ancient Thailand), Annam (part of present day Vietnam) and Europe, all found in Sarawak. The majority of these trade ceramics, especially those exported to this area in the early period, originated from China, particularly from southern China (Chin 1980). Following the Chinese trade ceramics, Southeast Asian ceramics such as Vietnamese monochrome wares and Siamese Sawankhalok celadon were also found in a lesser quantity in Sarawak. Sawankhalok wares were excavated from the cave sites at Niah, Bukit Sandong, Nanga Kalaka and Tebing Tinggi (Chin 1977, 1988). Apart from the archaeological

findings, some findings of Sawankhalok wares were reported by a private company during construction works in Similajau, Bintulu (Harrisson 1950). In fact, evidences of Sawankhalok ware (most of those collected by the Sarawak Museum Department) in Sarawak came from the heirlooms handed down from generation to generation by the indigenous people, particularly the Kelabit people in Sarawak. There was only a small number of Vietnamese ceramics excavated from Bukit Sandong, Tebing Tinggi and Muroh (Chin 1975, 1977). Japanese and European trade ceramics discovered in Sarawak are the minority and were probably exported to this part of Borneo during the 17th or 18th centuries CE (Chin 1988). However, the sources of Japanese and European ceramics were not mentioned in the previous research.

Zainie and Harrisson (1967) classified the sherds with decoration in black, brown or white slip under the coating of plain, or green glaze as products of the Cizhou kiln (磁州窑, known as Tz'u Chou ware in their article) in their classification system. Only a few examples of the forms of plate, vase and ewer were sorted into this class. Other than their materials, another piece of evidence of trade ceramic from the Cizhou kiln is a wine jar illustrated in Chin's (1988:140) book and it is now displayed in the gallery on the second floor of the Dewan Tun Abdul Razak exhibition hall of the Sarawak Museum Department, Kuching.

Apart from products of Cizhou kiln mentioned above, the class named celadon classified by Zainie and Harrisson was identified as "*the Song Dynasty products of kilns in the Longquan area of Zhejiang province*" (Zainie & Harrisson 1967). Celadon of Longquan kiln was commonly mentioned in the previous studies of Chinese trade ceramics in Sarawak. This opinion is acceptable as celadon studied

in this research also suggested that the ceramics in basically green colour mostly can be traced back to Longquan kiln.

Moore (1968) identified and illustrated the Chinese trade Ceramics originated from the kiln sites at Xicun (mentioned as Si Chun in Moore's article) in the Guangdong Province. She divided the ceramic products of Xicun kiln discovered in Sarawak into four major classes: (1) white (including Qingbai ware); (2) iron slip painted; (3) Yue type and (4) black-glazed ware. This is the first and only systematic research on the ceramics originated from Xicun kiln found in Sarawak.

Besides, some popular types of Chinese trade ceramic can also be found in Sarawak such as Chinese trade ceramic of Yue type with a high frequency and Chinese trade ceramic of Ding type (also mentioned as Ting type). Zainie and Harrisson (1967) considered Yue type as one of ten major classes in their classification system, while Chinese trade ceramic of the Ding type was classified in a sub-class under the class of white ware. Although these two types of Chinese trade ceramic were classified according to their place of origin, it cannot simply conclude that the ceramics from these kilns were found in Sarawak. This is because these popular types were widespread and many ceramic kilns in other regions imitated these popular products and exported them to the foreign markets.

Chinese trade ceramics manufactured in Dehua kiln are rarely mentioned in previous studies of ceramics from sites in Sarawak. Only several examples of the Dehua white wares were illustrated in Chin (1988:38, 39). Moreover, ceramic

products which originated from the kiln sites at Jingdezhen region were not highlighted in the previous studies on trade ceramics in Sarawak.

1.2.3 The dating of trade ceramics

The Sarawak Museum ceramic collection has almost every common types of Chinese trade ceramic from different periods such as celadon wares of the Song Dynasty and blue-and-white porcelain of the Ming Dynasty. According to Chin (1981), the trade ceramics excavated from 1948 to 1967, particularly from sites in the Sarawak River Delta and Gedong, are all dated from the Song and Yuan Dynasties (as classified by Feng Xian Ming in 1981). It can be generally summarized that the majority of Chinese trade ceramics found in Sarawak are celadons dated from the Song and Yuan Dynasty (10^{th} – 14^{th} centuries CE), and the blue-and-white porcelain of the Ming Dynasty (1368 – 1644 CE) (Han 1960, Chin 1988). In fact, the earliest evidence of Chinese trade ceramics in Sarawak were dated to the Tang Dynasty (Han 1960, Cheng 1969, Chin 1977). From the information mentioned above, it is noticed that the results of dating were generally given to a group of trade ceramic with a simple conclusion. Illustration of the evidences or reference materials used to determine the time when the ceramics were produced was rarely mentioned. In fact, the dating of Chinese trade ceramics of previous research relied heavily on comparative studies with ceramic research in China and no scientific analysis were applied to study and date the Chinese trade ceramics.

Detailed information and dating of certain types of ceramic vessels in Sarawak can be found in Chin's (1988) book. However, in the last decades, numerous excavations and researches on the dating of ceramics done in China have

provided more definite dating which can now be applied to the Chinese trade ceramics found in the research area. Moreover, the materials from Benat Hilir and Senangeh have yet to be studied and thus, no dates are available for the Chinese trade ceramics from these two sites.

1.3 Objectives of Present Study

The present study focuses on Chinese trade ceramics unearthed from three selected archaeological sites in Sungai Sadong - Gedong, Benat Hilir and Senangeh. These sites were chosen because their findings are similar and there are sufficient quantities of ceramic vessels in complete forms. Archaeological excavation in Gedong was done in the 1960s and 1970s; archaeological excavation in Benat Hilir was carried out in the 1970s and 2000s (Nyandoh 1971, personal communication, Ipoi Datan, 21st April 2011); while the findings from Senangeh were discovered in 1996 (Norlailawati 1996). The discoveries from these three selected sites consist of thousand complete and semi complete ceramic pieces. A progress report concerning the discoveries from Gedong was published in the 1960s, but, the finds from Benat Hilir and Senangeh have not yet been studied and no reports have ever been published. Chinese trade ceramics from Benat Hilir are the findings of archaeological excavation done by the Sarawak Museum Department in 2002, while Senangeh is a small site discovered by local villagers in 1996 while they were digging a well behind their long house. Sufficient quantities of complete ceramic vessels from these selected sites have enabled study of Chinese trade ceramics in this area to be carried out. This study therefore hopes to achieve the following main objectives:

i. To determine and classify the types of Chinese trade ceramics found in the Sadong area according to glaze colours, shapes and decorations.

ii. To compare the Sadong Chinese trade ceramics with their counterparts discovered from the kiln sites in China, as well as other archaeological sites in Southeast Asia and the ceramics from shipwrecks in South China Sea.

iii. To trace the provenance and the date of production of Sadong Chinese trade ceramics.

1.4 RESEARCH AREA AND SCOPE

1.4.1 Overview of the research area

Borneo Island is the third largest island in the world and the largest island in the Malay Archipelago and is geographically situated in the centre of the Southeast Asia region. Based on archaeological discoveries and historical documents, the south-western region of Borneo was under the influence, or perhaps it was the territory of the Srivijaya Kingdom (flourished in the 7^{th} – 13^{th} centuries CE) during the pre-Islamic era of Southeast Asia (Manguin 1996). Therefore, the coastal regions of Borneo Island, including the present research area, were involved in maritime trade between ancient China and India and the Middle East (Christie 1985). The research area is a significant drainage basin of Sungai Sadong (means Sadong River in local language) located in the southern part of Sarawak, Malaysia, equally same to the western part of Borneo Island. Sungai Sadong is a river as big as the Sarawak River, measuring approximately 4.8 km wide and approximately 82.1 km long from Kampung Gumpey in Serian District. According to oral history, Sungai Sadong is